SOME PAPUAN MYRTACEAE*

C. T. WHITE

With one plate

1. CAPSULAR-FRUITED MYRTACEAE (MYRTACEAE-LEPTOSPERMOIDEAE)

Metrosideros Banks

Metrosideros ornata sp. nov.

Metrosideros sp. No. 264, Lane-Poole, For. Res. Terr. Papua and N. Guin. 128. 1925.

Arbor ad 16 m. alta, trunco ca. 33 cm. diam., cortice lepidoto flavo-fulvo ("yellow-brown" — fide Lane-Poole), ramulis velutino-pubescentibus, juvenilibus quadrangularibus. Folia obovato-lanceolata, apice breviter et obtuse acuminata, basi in petiolum gradatim angustata, supra glabra, subtus velutino-fulvo-tomentosa, margine leviter recurva, costa media supra leviter impressa, subtus valde elevata, nervis lateralibus crebris, parallelis sed utrinque plus vel minus obscuris; lamina 2.5–3.5 cm. longa, 0.6–1 cm. lata; petiolus ca. 2 mm. longus. Cymae terminales, ramulis angularibus dense pubescentibus. Flores rubri pedicellati, pedicellis 2.5 mm. longis. Calyx campanulatus, 6 mm. diam., lobis 5 rotundatis 2.5 mm. diam. Petala rotundata, 3.5 mm. diam., margine ciliolata. Stamina ca. 10, 1.2 cm. longa. Ovarium glabrum, 4-loculare, a calyce liberum.

British New Guinea: Trail from Kokoda to the Gap, alt. 1600 m., Lane-Poole 264 (fl.), Aug. (small tree, 3 ft. girth, 50 ft. high; bark yellow-brown, scaly, the wood yellow, deepening to dark yellow or light brown; flowers scarlet).

Lane-Poole (l.c.) states, "The most ornamental tree I have seen in Papua. The dark green myrtle foliage and the scarlet flowers make a contrast which is most beautiful. The scarlet crowns can be picked out across wide valleys in these mountains."

Metrosideros parallelinervis sp. nov.

Arbor ad 23 m. alta, trunco 52 cm. diam., cortice lepidoto, ligno rubro (fide Brass), ramulis junioribus dense sericeo-pubescentibus demum glabratis. Folia ovato-lanceolata, juniora utrinque sericea demum glabra, apice longe et gradatim acuminata, basi subcuneata, supra subnitida, subtus pallidiora et opaca, nervis lateralibus supra obscuris, subtus prominulis subparallelis, crebris, vena marginali subtus prominula; lamina 3.5–5 cm. longa, 1–1.5 cm. lata; petiolus 2–3 mm. longus. Cymae axillares, 7–9-florae, 1.2 cm. diam., ramulis calycibusque dense albo-hirsutis. Calyx late campanulatus, 2.5 mm. diam., profunde 5-lobatus, lobis late triangularibus 1 mm.

*(Botanical Results of the Richard Archbold Expeditions) In addition to the plants collected on these expeditions, I have here described two others based on material in the Queensland Herbarium. Types of all species here described are deposited in the Queensland Herbarium and duplicates are in the Herbarium of the Arnold Arboretum.

altis. Petala flava, late et breviter ligulata, 2 mm. longa, margine ciliolata. Stamina ca. 15, filamentis leviter applanatis, 4 mm. longis, antheris parvis glandula magna ornatis. Ovarium a calyce liberum, hirsutum, triloculare.

NETHERLANDS NEW GUINEA: 4 km. sw. of Bernhard Camp, Idenburg River, alt. 950 m., frequent tree of mossy forest, on slope of ridge, *Brass 13149* (fl. and very young capsules), Mar. 1939 (tree 23 m. high, 52 cm. diam.; bark brown, scaly; wood red; fls. yellow; fruit yellow-green); same locality, alt. 900 m., very abundant as a subsidiary tree in *Agathis* forest, *Brass 13291* (TYPE: flowers) Mar. 1939 (tree up to 20 m. high, 30 cm. diam.; fls. yellow).

Among previously described species, the present one has the closest affinities with *M. Pullei* Diels, which differs in having shorter broader leaves, subterminal many-flowered cymes, and larger flowers.

Metrosideros parviflora sp. nov.

Arbor ad 35 m. alta, partibus novellis dense sericeo-pubescentibus, ramulis subrobustis. Folia petiolata juvenilia manifeste discoloria, subtus albicantia, dense et minute punctata; adulta in sicco supra subnitida, subtus pallidiora et opaca, lanceolata, apice obtuse acuminata, basi cuneata, costa media supra impressa, subtus elevata, nervis lateralibus supra obscuris, subtus opacis; lamina 6–7 cm. longa, 1.5–2 cm. lata; petiolus 5 mm. longus. Flores parvi, flavi. Cymae terminales vel subterminales densiflorae, ramulis sericeo-hirsutis. Calyx late campanulatus, tenuiter sericeus, 4 mm. diam., lobis ovato-triangularibus, 1 mm. altis. Petala late ovata, 3 mm. longa, basi 2 mm. lata. Stamina ca. 20, petala vix aequantia, filamentis leviter applanatis, antheris parvis, apice glandula magna ornatis. Ovarium triloculare a calyce liberum, dense pilosum, apice subplanum. Capsula oblonga, 3 mm. longa.

NETHERLANDS NEW GUINEA: 6 km. sw. of Bernhard Camp, Idenburg River, alt. 1300 m., rare on slopes in primary rain-forest, Brass & Versteegh 12570 (TYPE: flowers), Feb. 1939 (tree 35 m.; flowers yellow); 2 km. sw. of Bernhard Camp, Idenburg River, alt. 750 m., occasional tree on ridges in primary forest, Brass & Versteegh 13516 (capsules), Mar. 1939 (tree 23 m. high).

Among previously described species, the present one is most closely allied to *M. Pullei* Diels, which differs in having smaller relatively broader subovate leaves, narrower (linguiform) petals, and shortly exserted stamens.

Metrosideros Pullei Diels in Bot. Jahrb. 57: 417. 1922.

NETHERLANDS NEW GUINEA: Bele River, 18 km. ne. of Lake Habbema, alt. 2250 m., frequent in seral forest, Brass & Versteegh 11104 (fls. and unopened capsules), Nov. 1938 (tree 19 m. high, 41 cm. diam., with small crown; bark 3 mm. thick, scaly; outer wood white, inner dark red; flowers yellow; fruit green); Balim River, alt. 2160 m., forested slopes, Brass & Versteegh 11184 (fl.), Dec. 1938 (tree 21 m.; fls. yellow); 18 km. sw. of Bernhard Camp, Idenburg River, alt. 2050 m., frequent tree of primary forest, on ridge, Brass & Versteegh 12503 (fls. and capsules), Feb. 1939 (26 m. high, 41 cm. diam.; bark brown, scaly; fls. yellow; fruit brown).

I have not seen authentic material of M. Pullei Diels, and the determination is made from the description only. The present specimens have slightly larger leaves than the type (the only specimens quoted by Diels, l.c.) but otherwise seem to agree.

Metrosideros Pullei Diels var. parvifolia var. nov.

Folia ovata, apice acuta, basi subcuneata; lamina 1-1.5 cm. longa,

0.5-0.7 cm. lata; petiolus 1 mm. longus. Calyx 2.5 mm. diam. Petala 2.5 mm. longa.

NETHERLANDS NEW GUINEA: 18 km. sw. of Bernhard Camp, Idenburg River, alt. 2200 m., common on ridges in primary forest, *Brass & Versteegh 11999* (TYPE: flowers), Feb. 1939 (tree 21 m.; fls. yellow); 15 km. sw. of Bernhard Camp, Idenburg River, alt. 1800 m., very common subsidiary tree in mossy forest, *Brass 12007* (tree up to 20 m. high and 30 cm. diam.).

Mearnsia Merrill

Mearnsia cordata White & Francis, Proc. Roy. Soc. Queens. 39: 67. pl. 5, fig. 1. 1928. Netherlands New Guinea: Southern slopes of Balim Valley, alt. 2000 m., abundant in scrubs of Vaccinium and Rhododendron, on poor sandy soil, Brass 11603 (capsules), Dec. 1938 (tree 3-4 m. high); Balim River, alt. 2000 m., in Vaccinium scrub on poor sandy soil, Brass 11757 (fl. buds), Dec. 1938 (tree or shrub 3-4 m. high, fl. buds red); Bernhard Camp, Idenburg River, alt. 2150 m., in mossy forest, plentiful in the low scrub of an exposed summit and as a subsidiary tree in the forest, Brass 12720 (old capsules), Feb. 1939 (3-8 m. high); 6 km. sw. of Bernhard Camp, Idenburg River, alt. 1200 m., Brass 12916 (old capsules), Feb. 1939 (common epiphytic tree up to 15 m. high).

Mearnsia ovata sp. nov.

Metrosideros Regeli F. M. Bailey, Proc. Roy. Soc. Queens. 18: 2. 1940, non F. Muell.

Frutex scandens, glaber, ramulis robustis juvenilibus quadrangularibus. Folia opposita, late ovata, subcoriacea, 2–2.5 cm. longa, 1.3–1.5 cm. lata, margine leviter revoluta, apice obtusa, basi sed cordata, supra subnitida, subtus opaca et distincte pallidiora et in sicco rubescentia, venis lateralibus ca. 12 in utroque latere in venam marginalem 0.25 mm. remotam conjunctis, supra prominulis, subtus visibilibus sed vix prominulis; petiolus 1 mm. longus. Flores fasciculati ex axillis foliorum delapsorum e ligno vetere. Pedicelli 2 mm. longi, tenues, glabrescentes. Calycis tubus turbinatus glabrescens, 2 mm. longus, lobis triangularibus vix 1 mm. longis. Petala rubra, orbicularia, 2 mm. diam., basi in unguem angustata, stamina uniseriata, rubra, 1 cm. longa. Ovarium immersum, triloculare; stylus 1.3 cm. longus.

British New Guinea: Mt. Yale District, alt. 600 m., F. R. Barton (creeper growing up high forest tree, with very brilliant blossom).

Mearnsia scandens sp. nov.

Frutex scandens, partibus novellis pilis sericeis dense obsitis mox glabris, ramulis validis. Folia opposita, lanceolata vel angustissime obovata, subcoriacea, margine leviter revoluta, apice obtusa vel subobtusa, basi in petiolum validum angustata, supra subnitida, subtus opaca et leviter pallidiora, venis lateralibus ca. 14 in utroque latere in venam marginalem 0.25 mm. remotam conjunctis, supra obscuris, subtus prominulis; lamina 2.5–3.5 cm. longa, 0.8–1.2 cm. lata; petiolus 2 mm. longus. Flores fasciculati ex axillis foliorum delapsorum e ligno vetere. Pedicelli pilis albis sparsis obsiti, 3 mm. longi. Calycis tubus late turbinatus, 2 mm. longus, 4 mm. diam., subangularis, in parte inferiore pilis albis sparsissime obsitus, lobis late triangularibus. Petala rubra, orbicularia, 3 mm. diam., basi in unguem angustata. Stamina uniseriata, rubra, 1.7 cm. longa. Ovarium immersum, loculis 3; stylus ruber 2 cm. longus.

British New Guinea: Palmer River, 2 miles below junction of Black River, alt. 100 m., common in ridge forests, *Brass* 7062 (fls.), June 1936 (very showy canopy climber; stem free, covered with brown fibrous bark; branches climbing by adventitious

roots; leafy and flowering branches stiff, shrubby; calyx green; other parts of flower bright red).

Xanthostemon F. Muell.

Xanthostemon crenulatus sp. nov.

Arbor 10–18 m. alta, cortice fibroso-suberoso-lepidoto; ramulis validis, pubescentibus. Folia subopposita, oblonga, basi obtusa vel subobtusa, coriacea, margine undulato-crenulata, nervis lateralibus ca. 12, in sicco cum costa utrinque subprominentibus, venis reticulatis utrinque prominulis, lamina utrinque glabra, 7–11 cm. longa, 5–7.5 cm. lata; petiolus tomentosus, 5–6 mm. longus. Inflorescentiae terminales, densiflorae, ramulis dense tomentosis. Flores albo-virides, longe pedicellati, pedicellis tomentosis, 5–7 mm. longis vel (*Brass 8473*) ad 1.4 cm. longis. Calyx dense velutino-tomentosus, late campanulatus, 5 mm. diam., lobis 5 distantibus, 1.5 mm. altis. Petala 5, ovata, 2 mm. longa, dense tomentosa, basin versus in unguem plus vel minus constricta. Stamina numerosa, 7–9 mm. longa, filamentis glabris. Pistillum glabrum, stylo vix 1 cm. longo. Capsula basi lata adnata, caeterum libera, subglobosa, 3–4-locularis, 7–8 mm. diam., semina compresso-navicularia 5–6 mm. longa.

British New Guinea: Wuroi, Oriomo River, alt. 10–30 m., common savannah tree, Brass 5805 (capsules), Jan. 1934 (dense foliaged, rather heavy boled tree, 10–12 m. high, with contorted branches; bark grey, thick, soft, and corky; wood hard, reddish; leaves pale); Gaima, Lower Fly River (east bank), savannah forest, plentiful on sandy soil, Brass 8358 (Type: flowers), Nov. 1936 (tree 16–18 m. high; bark soft, fibrous-suberose, scaly; leaf-margins wrinkled; fls. greenish); Penzara, between Morehead and Wassi Kussa Rivers, abundant on savannah forest ridges, Brass 8473 (fl.), Dec. 1936 (tree 10–12 m.; bark soft, fibrous, scaly; fls. greenish-white); Upper Wassi Kussa River (left branch), savannah forests, common tree, Brass 8602 (fls.), Jan. 1937.

The species now proposed is very closely allied to *X. oppositifolius* F. M. Bailey, which has a very limited distribution in southeastern Queensland. It is probably the species referred to by Lauterbach as *X. spec. aff. oppositifolius* Bailey, in Nova Guinea 8: 854. 1910, from Merauke River, Netherlands New Guinea.

The two species can be distinguished as follows:—

Xanthostemon papuanus Lauterb. in Nova Guinea 8: 854. 1910.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, alt. 20-100 m., abundant on dry deforested slopes covered with grass and fern, old seral rain-forest, *Brass 8801* (fls. and young fr.), June-July 1938 (small tree 15-17 m.; fls. red).

I had drawn up a description of these specimens as a new species, but now consider them to be conspecific with Lauterbach's plant, of which, unfortunately, I have not seen an authentic specimen. The present ones differ from the description in the leaves being scattered, not crowded towards the ends of the branches, the venation I should say obscure rather than slightly prominent, and the stamens being red, not yellow. This last, however, is a

very variable feature in some myrtaceous genera, especially in the allied ones, Melaleuca and Callistemon.

Xanthostemon paradoxus F. Muell. in Hook. Kew Jour. 9:18. 1857; Fragm. Phytogr. Austr. 1:80. 1859

British New Guinea: Dagwa, Oriomo River, common savannah forest tree, Brass 5932 (old capsules), Feb.-Mar. 1934 (rather crooked tree, 12–15 m., with thick leafy crown of stiff branches, thick scaly bark, and hard reddish wood; leaves somewhat glaucous); Mabaduan, common in savannah forests, Brass 6556 (old capsules), April 1936 (stiffly branched tree 12–14 m. high; bark dark brown; leaves clustered at ends of branchlets); Lake Daviumbu, Middle Fly River, plentiful in rain-forest outskirts in contact with savannahs, Brass 7503 (fls. and fr.), August 1936 (tree 30 m.; bark dark grey, hard, fissured, early deciduous; flowers yellow, appearing a few days before the leaves fall); same locality and date, Brass 7869 (fl. and young lvs.), Sept. 1936; Tarara, Wassi Kussa River, abundant on savannah forest ridges and entering rain-forests, Brass 8575 (old capsules), Dec. 1936 (tree up to 30 m. high with dark fissured bark).

This species was originally collected by Mueller himself in Arnhem's Land. Mr. F. J. Rae kindly forwarded the type gathering on loan. This consists of two sheets, both very scrappy and not quite identical. Apparently the original description was drawn up from both. The species is as yet very imperfectly known in Australia, but I should consider all the above Papuan specimens to come under it (sens. lat.).

Tristania R. Br.

Tristania ferruginea sp. nov.

Arbor 30 m. alta vel ultra, cortice tenui fibroso, ligno fusco duro (fide Brass), partibus junioribus densissime ferrugineis, vetustioribus glabris. Folia coriacea, obovata, apice obtusa vel emarginata, basi in petiolum longum angustata, supra nitida, subtus pallidiora et opaca, in juventute dense floccoso-ferruginea, costa media supra impressa, subtus valde elevata, nervis lateralibus supra subobscuris in venam marginalem ca. 1 mm. remotam conjunctis; lamina 5-6.5 cm. longa; petiolus 2-2.5 cm. longus. Inflorescentiae multiflorae in axillis foliorum superiorum, in cymam terminalem ca. 8 cm. diam. dispositae, ramulis densissime ferrugineo-pubescentibus. Calyx late campanulatus, 3 mm. diam., extus in parte inferiore dense in parte superiore tenuiter ferrugineo-tomentosus, 5-lobatus, lobis late triangularibus, minute ciliolatis. Petala 5, calycis lobos paulo superantia, subrotunda. Stamina in phalanges 5 petalis oppositas 3-4-andras disposita, filamentis pilosis, petala paulo superantibus. Ovarium pilosum. Capsula subglobosa, trilocularis, 4 mm. diam., parte adnata 2 mm., libera 1.5 mm. longa.

British New Guinea: Fly River, 528-mile Camp, alt. 80 m., characteristic canopy tree of ridge forest, *Brass 6852* (detached capsules), May 1936 (tree 30 m.; foliage dense in crown, young leaves reddish; trunk deeply fluted toward the base, dark brown, fibrous; wood dark brown, hard and tough); Palmer River, 2 miles below junction of Black River, alt. 100 m., dominant tree of ridge forests, *Brass 7168* (TYPE: flowers) (over 30 m.; branches semi-erect, forming a thick rounded crown; tree spurred at the base; older trees deeply fluted; bark thin, fibrous; wood hard, brown, very durable; petals white).

In its markedly obovate leaves and small flowers with short few-androus phalanges, the present species is closely allied to $T.\ obovata$ Benn., which

is, however, perfectly glabrous in all its parts, has narrower more shortly petiolate leaves, and fewer-flowered lateral and axillary inflorescences.

Tristania longivalvis F. Muell. in Wing, South Sc. Record, n.s. 2: April 1886.

British New Guinea: Western Division, Wuroi, Oriomo River, common savannah tree, sometimes within light rain-forest, *Brass 5754* (fls.), Jan.-Mar. 1934 (clear-boled slender tree of upright branching habit, with brown flaky fibrous bark and hard wood; fls. bright yellow); Mabaduan, savannah forests, not common, *Brass 6544* (fls.), Apr. 1936 (tree 10–15 m., with thin gray laminated fibrous bark; fls. bright buttercupyellow); Tarara, Wassi Kussa River, abundant, forming bushy forests on clay ridges along river, *Brass 8530* (fls.), Dec. 1936 (tree 12–15 m., fls. yellow).

These specimens have more lanceolate narrower leaves than all the Australian ones I have seen, but otherwise seem inseparable.

Tristania suaveolens Smith in Rees, Cyclop. 36: no. 2. 1817.

British New Guinea: Western Division, Wuroi, Oriomo River, Brass 5900 (fr.), Jan.-Mar. 1934; Dagwa, Oriomo River, common savannah forest tree, Brass 5972 (fr.), Feb.-Mar. 1934 (leaves greyish underneath, the midrib and nerves yellowish above); Daru Island, common on drier soils in savannah forests, Brass 6327 (fls.), Mar. 1936 (tree about 15 m. tall, usually leaning and misshapen; bark brown, fibrous, flaky; fls. white); Lake Daviumbu, Middle Fly River, forming pure fringe forests 20–25 m. high, extending to less arid savannahs, Brass 7792 (fls.), Sept. 1936 (bark laminated, fibrous, reddish brown; fls. white); Tarara, Wassi Kussa River, ridges of savannah forests, Brass 8401 (fls.), Dec. 1936 (25 m. or more; bark brown, fibrous, laminated and fissured; fls. white); Tarara, Wassi Kussa River, savannah forest, one of the principal trees on the ridges, Brass 8537 bis (fls.), Dec. 1936 (attaining 30 m.).

Basisperma gen. nov.

(Tribus Leptospermeae: Subtribus Metrosidereae)

Flores hermaphroditi. Calycis tubus late campanulatus vel explanatus, limbo prominente 5-dentato. Petala 5, patentia. Stamina numerosa, pluriseriata, petalis breviora, in phalanges 5 petalis oppositas plus vel minus connata, filamentis filiformibus, antheris minutis versatilibus, loculis parallelis longitudinaliter dehiscentibus. Ovarium superum, biloculare. Stylus filiformis, stigmate minute capitato; ovula in loculis numerosa, in placenta basilari erecta. Capsula subglobosa, latere saepe compressa; valvae coriaceae vel sublignosae, intus semisepto medio notatae; semina perfecta, pauca, magna, testa subcarnosa; semina abortiva numerosa oblonga parva. Arbor. Folia alterna, opposita vel ternatim verticillata, lanceolata, pennivenia. Flores in cymas axillares pedunculatas bracteolatas dispositi.

Species 1 in Papua crescens.

Basisperma lanceolata sp. nov.

PLATE I.

Arbor 7–8 m. (fide Brass), partibus novellis sericeis, ramulis junioribus quadrangulatis. Folia alterna, opposita vel ternatim verticillata, lanceolata, apice acuta, basi cuneata in petiolum gradatim angustata, supra glabra, subtus argentea, sericeo-tomentosa; nervi praecipui ca. 30 in utroque latere, in sicco utrinque prominuli, in venam intramarginalem 0.5 mm. remotam conjuncti; petiolus 5–7 mm. longus, lamina 8–9 cm. longa, 2–2.5 cm. lata. Cymae axillares, ca. 1.5 cm. diam., bracteolis pedunculis ramulis pedicellisque sericeis; bracteolae paucae lanceolatae 1–2 mm. longae, pedunculi 1–1.5 cm. longi; pedicelli 2–3 mm. longi. Calyx sericeus, late campanulatus, sub

fructu explanatus, ca. 6 mm. diam., limbo prominente 5-dentato, dentibus triangularibus 1 mm. altis. Petala 5, oblonga (?). Stamina in phalanges 5 petalis oppositas ca. 12-andras disposita, filamentis petalis brevioribus. Capsula aurantiaca (fide Brass) subglobosa, ca. 7 mm. diam., valvae coriaceae vel sublignosae, intus nitidae, semi-septo medio notatae; semina perfecta pauca (1–3), rubra, testa subcarnosa in sicco rugulosa; semina imperfecta oblonga, 1 mm. longa.

British New Guinea: Western Division, Tarara, Wassi Kussa River, common in rain-forest along river, *Brass 8377* (fruit), Dec. 1936 (tree 7-8 m.; fruit orange-yellow; seeds red).

The generic name refers to the basal position of ovules and seeds. The closest affinities of *Basisperma* are, I think, with *Tristania* R. Br., which differs in having the ovary trilocular and adnate to the calyx, even though it may be only at the base, the ovules being pendent or horizontal, not basal and erect, and the seeds being dry, small, and frequently winged at one end.

The single specimen originally sent to me was in fruit only, and a careful search failed to reveal any flower fragments that might assist in identification. The wholly superior bilocular Pittosporum-like capsule, with basal placentation, made me doubt whether it was actually myrtaceous. A specimen sheet, which by good fortune contained the remains of a flower, was sent to Prof. Irving W. Bailey for examination, and he concluded that the plant agreed with Myrtaceae in the following respects: leaf venation; absence of stipules; a unilacunar node; large oil glands in pith cortex, leaf, flower, and fruit; structure of the internal phloem; presence of simple thick-walled unicellular hairs; possession of concentric rings of hard bast; structure of vessels, tracheids, parenchyma and rays; abundance of tannin; and structure of the pollen. The only disagreement with Myrtaceae was the superior ovary. In his report on the plant, Prof. Bailey wrote: "I was able to examine the pollen and flower due to the keen eyes of my assistant Heintzelman, who spotted a dried-up petal that was attached to one of the fruits by the hyphae of a fungus. Attached to the base of this deciduous petal were about 12 stamens. Each stamen has a large oil gland at the apex of the anther. The structure of the flower appears to have been as shown in the somewhat diagrammatic sketches on the accompanying plate."

Later, Dr. Perry searched through the duplicate material of this number collected by Brass and sent me a flower fragment similar to that seen by Prof. Bailey. The above description has been drawn up from this material. It is hoped that additional flowering specimens may be available later, to enable a more complete account of the new genus to be made.

Eucalyptus L'Her.

(Determinations by W. F. Blakely, Botanic Gardens, Sydney)

Eucalyptus clavigera A. Cunn. ex Schauer in Walp. Rep. 2: 926. 1843.

British New Guinea: Western Division, Tarara, Wassi Kussa River, savannah forests, localized on well drained soils, not very common, *Brass 8568* (fls. and old capsules), Dec. 1936 (conspicuous tree up to 25 m. high, 0.6 m. girth; lower stem

grey-black, scaly; bark of upper stem smooth, yellowish grey; branchlets weak, often pendent).

Eucalyptus papuana F. Muell. Descript. Notes Pap. Pl. 1: 8. 1875.

British New Guinea: Western Division, Daru Island, savannahs in centre of the island, rare, Brass 6054 (fr.), Mar. 1934 (tree up to 10 m.; base of trunk rough; upper trunk and branches smooth, greenish grey).

A form with very constricted fruits.

Eucalyptus tereticornis Sm. Bot. New Holl. 41. 1793.

British New Guinea: Western Division, Dagwa, Oriomo River, alt. 40 m., savannah forest ridges, rare, Brass 5947 (fls.), Feb.-Mar. 1934 (open-crowned tree attaining 15 m.; branchlets somewhat pendent; bark of trunk pale ash-grey, furrowed and fissured, 1-1.2 cm. thick on tree 22 cm. diam.; bark of branches grey or blue-grey, smooth, exfoliating in long folded strips; fls. white; capsules about 1 cm. diam. across the rim); savannah forest, a number of trees in an isolated patch, uncommon, Brass 6004 (fls.), Feb.-Mar. 1934 (tree of open erect branching habit, about 15 m. high; branchlets weak; lower half of trunk covered with rough grey furrowed bark; bark of upper trunk and branches smooth, blue-grey, peeling in long folded strips; leaves pale; fls. white; operculum waxy creamy white; pedicels angled), Brass 6005 (same with very young fr.); Wuroi, Oriomo River, alt. 10-50 m., savannah forests, uncommon, Brass 6020 (fls. and fr.), Jan.-Mar. 1934 (tall unshapely tree, attaining 25 m. or more; lower trunk bark persistent, dark grey, rough, shallowly fissured; upper trunk and branches smooth, blue-grey); Daru Island, plentiful in savannah forests, Brass 6428 (fr.), Apr. 1936 (tree about 25 m.; trunk on lower part with fibrous rough-grey bark, exfoliating in long irregular pieces about 3 mm. thick; bark of branches smooth, bluish grey); Tarara, Wassi Kussa River, subsidiary to E. terminalis on savannah forest ridges, Brass 8402 (fr.), Dec. 1936 (slender tree, 15 m.; bark on stem fissured, scaly, on branches smooth, grey; young leaves glaucous beneath; fls. not seen); savannah forest, fairly common ridges, Brass 8719 (fls. and fruits), Jan. 1937 (tree about 20 m.; bark dark, rough, hard, fissured; bark on branches smooth, grey; fls. white).

Mr. Blakely, in his "Key to the Eucalypts," 130 (1934), adopts the combination *E. umbellata* (Gaertn.) Domin for this species. Prof. Osborn (Proc. Linn. Soc. N.S.W. **62:** 76. 1937), however, has pointed out that the combination is untenable due to the earlier publication of *E. umbellata* Dum.-Cours. The Papuan specimens have a more robust appearance than the common Australian form, and Mr. Blakely remarks that they represent "the tropical and probably a very old form of the species."

Eucalyptus terminalis F. Muell. in Jour. Linn. Soc. 3: 89. 1859.

British New Guinea: Western Division, Dagwa, Oriomo River, rare in savannah forest, Brass 5970 (fl. buds and old capsules picked up under trees), Feb.-Mar. 1934 (large thick-trunked tree attaining 25 m. with trunk diam, of 60 cm.; branches widespreading and sparsely foliaged; bark averaging about 1.8 cm. on a trunk 60 cm. diam., pale brown, soft, shortly fibrous, scaly; wood hard and heavy; sapwood pale; inner wood reddish; leaves greyish beneath; veins more conspicuous above; fl. buds and pedicels scabrid, silver-grey); Daru Island, common savannah tree, Brass 6048 (fls.), Mar. 1934 (large, thick-trunked tree with grey-brown, soft, fibrous and somewhat scaly bark; petioles and young branches red; leaves greyish beneath; profusion of large white flowers); Mabaduan, abundant in canopy layer of savannah forest, Brass 6557 (fls.), Apr. 1936 (tree 15-18 m.; stem straight, cylindric; heavy spreading branches, forming flattish crown; bark pale brown, fibrous, soft and brittle; wood hard, heavy, reddish brown; fls. white), a rather coarse-budded form; Tarara, Wassi Kussa River, savannah forests, locally abundant on well drained soil, Brass 8746 (very young buds and old fr.), Jan. 1937 (tree up to 25 m., 0.6-0.7 m. diam.; bark thick, soft, fissured, fibrous, brown).

Agonis DC.

Agonis lysicephala (F. Muell. & F. M. Bailey) F. M. Bailey, Synopsis Queens. Fl. Suppl. 2: 37. 1891; Francis and White, Proc. Roy. Soc. Queens. 37: 158. 1926.

British New Guinea: Lake Daviumbu, Middle Fly River, plentiful on lower savannah ridges, *Brass* 7797 (fl. and capsules), Sept. (very slender tree 1.5–3 m.; coppice shoots produced from a thickened stock when aërial parts are killed by fires; fls. white); Lower Fly River, savannah areas, common about edges of swamp, *Brass* 8357 bis (fl. and capsules), Nov. (shrub 1 m. high; fls. white); Tarara, Wassi Kussa River, abundant on grey flats of savannah forest, *Brass* 8382 (fls. and capsules), Dec. (shrub less than 1 m. high); same locality, *Brass* 8709 (forming dense scrubs 2–3 m. high, fls. white).

Melaleuca L.

Melaleuca Cunninghamii Schauer in Walp. Rep. 2: 927. 1843.

Melaleuca Leucadendron L. var. sanguinea Cheel in Ewart and Davies, Fl. North. Terr. 296. 1917.

Melaleuca Leucadendron L. var. Cunninghamii Cheel, I.c. 297.

British New Guinea: Wuroi, Oriomo River, very abundant in grey soil ridges, Brass 5695 (fls.), Jan.-Mar. 1934 (contorted, sparsely foliaged low tree, with thin, somewhat fibrous papery bark; petioles red; fls. red); dominant species in low and often rather scrubby savannah on grey soil ridges, Brass 5714 (fls.), Jan.-Mar. (low, loosely branched, sparsely foliaged tree 4-6 m., with somewhat fibrous, laminated grey bark; fls. red); Daru Island, low swampy land about middle of island, common, Brass 6036 (fls.), Mar. (rather crooked small tree, 8-10 m., with grey papery bark; petioles red; flowers numerous, greenish white); Lake Daviumbu, Middle Fly River, savannahs, forming low scrubs on acid soils, Brass 7794 (fls.), Sept. (tree 3-6 m.; bark laminated, papery; fls. red); Western Division, Mabaduan, abundant in savannah forests as substage tree, Brass 6558 (fls.), Apr. (tree 6-8 m. high; branches stiff, contorted; bark grey in paper-like layers; wood reddish, dark, heavy; occasional on savannah ridges, Brass 7937 (fls.), Sept. (low tree 3-4 m.; fls. greenish white); sour savannah slopes, Brass 7938 (fls.), Sept. (about 1 m. high, branched or unbranched; fls. pink); common on sour savannah slopes, Brass 7939 (fls.), Sept. (variable dwarf form, branched or unbranched, about 1 m. high; fls. various shades of red); Penzara, between Morehead and Wassi Kussa Rivers, poorly drained flats of savannah forest, Brass 8478 (fls.), Dec. (tree 5-7 m.; fls. red); Tarara, Wassi Kussa River, plentiful in low scrubs, dominated by Agonis, Brass 8710 (fls.), Jan. (sparsely branched stiff tree 1.5-2.5 m.; fls. pink to red).

Melaleuca Cunninghamii Schauer is a common tree in North Australia and southern Papua. It occurs in two main colour forms, one with flowers a deep blood red, the other with flowers a greenish-white, with an occasional intermediate form with pink flowers (Brass 7938 and 8710) or various shades of red (Brass 7939).

Colour is an extremely variable feature in both *Melaleuca* and *Callistemon*. Cheel, in a valuable study of the North Australian species of *Melaleuca* (in Appendix II of the Flora of the Northern Territory by Ewart and Davies), proposes to treat both forms as separate varieties of *M. Leucadendron* L.

Melaleuca Cunninghamii Schauer var. glabra var. nov.

Varietas rhachi et calycibus glabris.

British New Guinea: Western Division, Tarara, common in poorly drained savannah forests, *Brass 8485* (Type; flowers), Dec. 1936 (crooked slender tree 5–8 m.; bark grey, papery; fls. greenish white).

AUSTRALIA: The following sheets in Herb. Kew represent this variety: Port Essing-

ton, Gilbert (presented by John Gould Esq.); Carpentaria, R. Brown 4712; N. W. Australia, A. Cunningham (voyage of the Beagle, 1839, marked in Cunningham's handwriting, "calyx not silky as in M. Cunninghamii"); N. W. coast, Bynoe; North coast, A. Cunningham; E. C. Australia, A. Cunningham; Wednesday Island, Torres Straits, Moseley, Challenger Exped. 9174. It is represented in Herb. Brisbane by the following: Stannary Hills, T. L. Bancroft; Frewhurst, Etheridge Railway, C. T. White 1369 (fls.), Feb. 1922; near Chillagoe, forming open communities in damper places on grey, sandy soil, S. T. Blake 13565 (fls.), Apr. 1938 (slender erect or somewhat weeping tree, 15–20 ft., with compact whitish, scarcely papery bark; leaves rather yellowish green; flowers pale greenish).

Melaleuca Leucadendron L. Mant. 105. 1767.

British New Guinea: Western Division, Daru Island, common in low savannah in centre of island, *Brass 6041* (fls.), March 1934 (tree 20–25 m., with straight stout trunk and whitish papery bark; peduncles and calyces glabrous; petals and stamens white; style green).

Melaleuca Leucadendron L. vel aff. British New Guinea: Lower Fly River, east bank opp. Sturt Island, forming pure swamp forests, 30-35 m. high, Brass 8147 (fr.), Oct. 1934 (leaves slightly glaucous; petioles red).

Melaleuca Leucadendron L., aff. British New Guinea: Lake Daviumbu, Middle Fly River, forming narrow fringe forests on swampy shores of lagoons, Brass 7956 (fr.), Sept. (tree 20 m.; petioles red).

A very distinctive plant, probably representing an undescribed species. The leaves are broadly elliptic and prominently 9-nerved, and the fruits are remarkably small. I hesitate to name it until flowers are available.

Melaleuca Leucadendron L. aff. British New Guinea: Western Division, Wurci, Oriomo River, common in tall savannahs and close to rain-forest, Brass 5814 (fls.), Jan.-Mar. (tree about 30 m., with clear, rather slender trunk; fls. greenish white); Daru Island, extensive pure stand in shallow margins of big open swamp, Brass 6372 (fls.), Mar. (tree 10–12 m. tall; fls. white); Mabaduan, forming pure swamp forests, 30–35 m. high, Brass 8147 (fr.), Oct. (leaves slightly glaucous; petioles red).

All the above probably represent a distinct species, probably undescribed. I do not care, however, to name them until a complete revision of the *M. Leucadendron* L. series has been made, which is not possible until types in European herbaria are available for study.

Melaleuca Leucadendron L. var. minor Cheel in Ewart and Davies, Fl. North Terr. 299. 1917.

British New Guinea: Tarara, Wassi Kussa River, subsidiary tree on savannah forest ridges, *Brass 8407* (fl.), Dec. (6–10 m.; bark grey, laminated in papery layers; foliage grey; flowers green).

These specimens agree with what is regarded in Australia as *M. Leuca-dendron* L. var. *minor* Cheel, though whether this is the same as *M. minor* Sm., the type of which comes from Amboina, it is impossible to say until an examination of Smith's specimen is possible. When working at the Royal Botanic Gardens, Kew, in September 1939, I noticed a great mixture of Asiatic material under *M. minor* Sm., and this probably applies to most European herbaria.

Melaleuca sp. aff. M. Leucadendron L. (cf. C. T. White in Proc. Roy. Soc. Queens. 34: 46. 1922; Jour. Arnold Arb. 10: 253. 1929).

British New Guinea: Gaima, Lower Fly River, the principal tree of savannah forests, Brass 8247 (fl.), Nov. (30 m. or more, with spreading open crown; bark greybrown, laminated, fibrous-papery; foliage grey; fls. white; end of style green).

These specimens differ from those previously referred to by me (l.c.) in the leaves being clothed with fine silky hairs. In this respect, it is very like *M. argentea* W. V. Fitzg. of North Australia. The more glabrous specimens previously collected by Brass are almost inseparable from much material at Herb. Kew and elsewhere placed under *M. minor* Sm. The filaments are much shorter than in most other groups of the *M. Leucadendron* L. series. Unfortunately, many types are unavailable for study at present, and until the types can be studied, critical work on this difficult group is impossible.

Melaleuca symphyocarpa F. Muell. in Trans. Phil. Inst. Vic. 3: 44. 1858.

British New Guinea: Wuroi, Oriomo River, abundant on savannah ridges and in light rain-forest, *Brass 5690* (fls.), Jan.-Mar. (straight-trunked tree, with rounded crown of upright branches attaining 25 m.; bole rather slender; bark thick, deeply furrowed, fibrous, brown; wood hard, heavy, brown, free-splitting; sapwood and inner bark surfaces finely ridged or striate; fls. bright red; most trees in full flower); Gaima, Lower Fly River (east bank), abundant in dense savannah forests, *Brass 8295* (fls.), Nov. (erect tree 20–25 m.; bark brown, fibrous, deeply fissured; wood brown, hard, durable; fls. red); Tarara, Wassi Kussa River, savannah forest, confined to ridges, *Brass 8533* (fls.), Dec. (tree 10–20 m.; stem cylindrical; bark grey-brown, thick, fibrous, with thick short fissures; flowers red).

Like many other melaleucas, especially those of the "Leucadendron" group, this species occurs in two distinct colour forms. The yellow-flowered form may be distinguished as follows:

Melaleuca symphyocarpa f. aurantiaca f. nov.

Flores aurantiaci.

British New Guinea: Tarara, Wassi Kussa River, in poorly drained savannah forests, *Brass 8381* (fls.), Dec. (tree 7-10 m.; branches drooping; stem fluted; bark hard, fissured; sapwood finely corrugated; fls. orange-yellow); Tarara, Wassi Kussa River, dominant over much flat savannah forest, *Brass 8532* (fls.), Dec. (tree 7-10 m.; branches drooping; stem fluted; bark grey, fissured, fibrous, very hard; flowers orange-yellow).

Melaleuca viridiflora Sol. ex Gaertn. Fruct. 1: 173. tab. 15. 1788, vel aff.

British New Guinea: Tumbuke, Wassi Kussa River, Brass 8480 (fr.), Dec. (compact, bushy tree; bark grey, papery, laminated; no fls. seen).

These specimens are in fruit only, but agree with much *M. viridiflora* Sol. material from eastern Australia, and as understood by Cheel in Ewart and Davies, Flora of the Northern Territory, p. 299.

Baeckea L.

Baeckea frutescens L. Sp. Pl. 358, 1753.

NETHERLANDS NEW GUINEA: Balim River, alt. 2000 m., abundant on poor sandy soil, Brass 11838 (capsules), Dec. (slender shrub up to 1 m. high).

2. FLESHY-FRUITED MYRTACEAE (MYRTACEAE-MYRTOIDEAE)

Fenzlia Endl.

Fenzlia obtusa Endl. Atakta 19, t. 17. 1833.

British New Guinea: Lower Wassi Kussa River, with *Dodonava* sp. in xeric shrubberies on clay bank of river, *Brass 8411* (leaf specimen only), Dec. 1936 (shapely shrub 1–1.5 m.); same locality, abundant on clay banks of river, *Brass 8728* (fls. and fr.), Jan. 1937 (shrub 1–3 m.; fls. pink, later white; fr. orange-yellow).

Rhodamnia Jack

Rhodamnia cinerea Jack in Malay. Miscel. 27. 1822, sens. lat.

British New Guinea: Lake Daviumbu, Middle Fly River, rain-forest canopy tree, Brass 7784 (fls.), Sept. 1936 (25 m. high; trunk spurred at base; bark soft, brown, fibrous, scaly; flowers white, rose-scented); same locality, dry type rain-forests, plentiful in substage and extending to Tristania fringe forests, Brass 7791 (fls.), Sept. 1936 (bark dark grey, soft, fibrous, deeply fissured; flowers white); Gaima, Lower Fly River (east bank), common in light rain-forest and extending to savannahs, Brass 8289 (fls.), Nov. 1936 (bushy tree 10–12 m. high; bark rough, fissured; flowers white); Tarara, Wassi Kussa River, sporadic in savannah forests, Brass 8703 (fr.), Jan. 1937 (tree 7–8 m.; bark dark, fissured).

The Malayan and Papuan species of *Rhodamnia* are badly in need of revision, work that must wait for more propitious times, when types in European herbaria are again available for study.

Rhodamnia spongiosa Domin in Bibl. Bot. 89: 1030. 1928; C. T. White in Blumea Suppl. 1: 218. pl. 14, fig. 7. 1937.

British New Guinea: Lower Fly River, east bank, opp. Sturt Island, rain-forest of dry inland ridges, *Brass 8179* (fls.), Oct. 1936 (virgate tree; fls. white, delicately fragrant); Tarara, Wassi Kussa River, rain-forest substage or small canopy tree, *Brass 8593* (fls.), Dec. 1936 (tree attaining 15 m.; bark grey-brown, hard, fibrous, shallowly fissured; flowers white).

Myrtella F. Muell.

Myrtella Beccarii F. Muell. Descript. Notes Pap. Pl. 1: 106. 1877.

NETHERLANDS NEW GUINEA: Hollandia and vicinity, alt. 20-100 m., plentiful on open slopes covered with *Gleichenia* and *Ischaemum*, *Brass 8887* (fls. and fr.), June-July 1938 (flat topped shrub 1.5 m. high; fls. white; fruit soft, black).

Mr. F. J. Rae kindly compared for me a piece of the above with the type sheet at the National Herbarium, Melbourne, and states they agree very well.

Rhodomyrtus DC.

Rhodomyrtus macrocarpa Benth. Fl. Austr. 3: 273. 1866.

British New Guinea: Western Division, Dagwa, Oriomo River, alt. 40 m., in creek bank, gallery forest, rare, *Brass 5989* (fl. buds), Feb.-Mar. 1934 (tree 8-10 m., of compact growth; leaf-nerves deeply impressed above; flowers buds white).

Rhodomyrtus novoguineensis Diels in Bot. Jahrb. 57: 378, 1922.

British New Guinea: Central Division, Mt. Tafa, alt. 2400 m., amongst dense scrambling bamboo in a forest clearing, rare, *Brass 5110* (fls. and young fr.), May-Sept. 1933 (slender branched bush 2 m.; leaves pale green; fls. cream coloured). Netherlands New Guinea: 15 km. sw. of Bernhard Camp, Idenburg River, alt. 1800 m., occasional in mossy forest, *Brass 12053* (fr.), Jan. 1939 (slender shrub 3 m. high); Bernhard Camp, Idenburg River, alt. 2150 m., several plants on an open rock slide, *Brass 12455* (fr.), Feb. 1939 (very slender tree; fruit soft, yellow).

I have not seen an authentic specimen of *R. novoguineensis* Diels and the above determinations are from his description. *Brass 5110* is very like *R. trineura* F. Muell., but the other two plants are of different appearance. It is possible that two species are represented.

Rhodomyrtus pinnatinervis sp. nov.

Frutex vel arbor parva, partibus junioribus foliis subtus pedicellis bracteolis calycibusque plus vel minus dense griseo-pubescentibus. Folia petiolata, lanceolata, supra mox glabra, costa media supra impressa, subtus elevata, nervis lateralibus utrinque 10–12, supra leviter impressis, subtus valde elevatis; lamina 4–8 cm. longa, 1.5–2 cm. lata; petiolus 5–8 mm. longus. Flores axillares, solitarii, longe pedicellati; pedicelli 2–2.5 cm. longi; ad apicem bibracteolati; bracteolis anguste ovatis, 3–4 mm. longis. Calyx (in fructu) profunde 5-lobatus, lobis suborbicularibus 3 mm. diam. Petala alba (fide Brass), 6 mm. longa, basi unguiculata, in sicco pustulata (sed in specimine meo imperfecta). Bacca flava, 10–11 mm. diam. (fide Brass), extus dense griseo-tomentosa, in sicco ca. 8 mm. diam., multi-locularis.

British New Guinea: Central Division, Mt. Tafa, alt. 2350 m., edge of clearing in mossy forest, *Brass 4085* (fls.), May-Sept. 1933 (bush 2–2.5 m., with upright branches; lvs. red when about to fall; flowers white); Mt. Tafa, alt. 2400 m., in a small shrubbery on rest clearing in ridge forest, *Brass 4895* (fr.), May-Sept. 1933 (bush about 1.5 m. high; old leaves red; fruit soft, yellow, 10–11 mm. diam.); same locality and habitat, common, *Brass 4905* (Type: old flowers and immature fruits), May-Sept. 1933 (small tree or bush; leaves dark; young foliage grey; pedicels, calyx and fruit grey-pubescent; corolla white; fruit immature).

Among previously described species, the present one seems to agree most closely with R. psidioides Benth., common in southeastern Queensland, which differs in having larger, more glabrous leaves, and the flowers in cymes, not solitary in the axils.

Rhodomyrtus trineura F. Muell. ex Benth. Fl. Austr. 3: 272. 1866

British New Guinea: Tarara, Wassi Kussa River, rain-forest, common in substage, Brass 8555 (fl.), Dec. 1936 (fls. white); same locality, substage or lesser canopy tree in rain-forest, Brass 8592 (fls.), Dec. 1936 (attaining 14–15 m.; bark brown, soft, fibrous, fissured, exuding a reddish gum when cut; fls. white).

These specimens represent a form with particularly long pedicels, up to 1.5 cm. long, and bibracteolate at the apex. They represent the var. pedicellosa F. Muell. ex White and Francis (Bot. Bull. Brisbane 22: 26. 1920).

Rhodomyrtus calophlebia sp. nov.

Arbor humilis patula 4 m. alta, ramulis crassiusculis innovationibus angulatis dense fusco-pubescentibus. Folia opposita vel alterna elliptica petiolata, lamina 13–18 cm. longa, 5–9 cm. lata, utrinque gradatim angustata vel apice subabrupte acuminata, acumine 5–8 mm. longo, utrinque costa nervisque primariis parce consperseque pubescentibus exceptis glabra, manifeste reticulata minute pustulata, costa subtus elevata, nervis primariis prominulis utrinsecus 12–15 oblique patentibus in venam intramarginalem prominulam 0.8–1 cm. a margine confluentibus, juxta marginem cum venula minore parallelam, petiolo 2.5 cm. longo. Flores non visi. Bacca ut videtur axillaris solitaria subsessilis, pedunculo 2–3 mm. longo, ovoidea, basi bibracteata (bracteis linearibus 4 mm. longis 1 mm. latis obtusis), breviter stipitata 3.5 cm. longa 2 cm. diametro extus dense fusco velutina, seminibus numerosis in acie dupla superpositis.

British New Guinea: Central Division, Rona, Laloki River, alt. 450 m., on bank of a small stream in rain-forest, only one tree seen, *Brass 3600* (fruit), April 1933 (low spreading tree, 4 m.; leaves dull; fruit pale brown, solitary in axils of the leaves).

The above plant, I think, is referable to *Rhodomyrtus* and is very similar to *R. macrocarpa* Benth. The leaves are opposite and alternate, which is

rather unusual in the Myrtoideae, and their venation is striking, though of a type common in the family. The fruits have the same structure as those of R. macrocarpa Benth.

BOTANIC GARDENS, BRISBANE, AUSTRALIA.